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I. Introduction
San Jose State University (SJSU) is in the midst of a dramatic facilities upgrade and expansion period throughout the entire campus. Several projects have recently been completed, are in progress or planned in the next few years. As part of this ongoing effort, SJSU commissioned this phasing study for the Southeast Quadrant of the campus.

The Southeast Quadrant (Residential Quadrant) consists of a majority of existing Housing Complexes, a Dining Commons and an Aquatic Center. Since the buildings are closely built, it is difficult to propose anything new without impacting the existing programs and structures. The primary objective of the Southeast Quadrant Phasing Study therefore is to define the sequencing of future building projects, the interface between each project’s boundaries, and to identify the framework for the utility and building service infrastructure that will be required to execute the specific projects.
The existing campus utility systems, which include chilled water, steam, domestic & fire water, recycled water, storm drain, sewer, natural gas, electrical and telecommunications are outlined in detail in the Utilities Master Plan dated June 2013. In addition to meeting the planned growth of the campus, multiple campus infrastructure projects are ongoing to meet the long term objectives of the campus to: 1) prevent campus wide utility shutdowns, 2) prevent partial campus shutdowns, 3) prevent high impact building shutdowns, and 4) prevent low impact building shutdowns in that priority.

Therefore, based on the campus Utilities Master Plan, each phase will be able to plug into an existing campus utility infrastructure with sufficient load capacity.

The purpose of the utility component of the Phasing Study is to review the impact of the proposed Southeast Quadrant upgrade on the existing campus utility systems. The estimated loads below are based on the anticipated size of these future projects as outlined in the Phasing Strategies.

**CHILLED WATER**
The existing campus central cooling plant has sufficient capacity to accommodate the construction of Campus Village Phase 2 and the Recreation and Aquatics Center. A new cooling plant will need to be installed as part of the construction of Campus Village Phase 3. As part of these projects, the new CHW main will be routed under the new Paseo (pedestrian mall) to complete the CHW campus loop. The new cooling plant in CV-3 will back-feed into the new main campus central loop. The estimated cooling block load demand for each phase of construction is as follows:

1. Campus Village Phase 2 = 480 tons
2. Recreation and Aquatics Center = 340 tons.
3. Campus Village Phase 3 = 1,350 tons.

**STEAM**
The existing campus steam plant shall be extended to serve Campus Village Phase 2 and the Recreation and Aquatics Center. A new low-temperature hot water system with heating hot water plant will be installed as part of the construction of Campus Village Phase 3. This system will be used to serve the entire Southeast Quadrant (inclusive of CV-1, CV-2, RAC, and CV-3) and the steam service will be removed. The estimated heating block load demand for each phase of construction is as follows:

1. Campus Village Phase 2 = 9,600 MBH.
2. Recreation and Aquatics Center = 13,000 MBH (includes pool heating). The new pool will be heated via the central heating distribution system in lieu of a stand-alone system.
3. Campus Village Phase 3 = 28,800 MBH.

**SANITARY SEWER**
The existing site sanitary system within Paseo San Carlos, Ninth Street and Seventh Street has sufficient capacity to accommodate the planned projects for the Southeast Quadrant. The new services will be city mains and will be built to city standards with required man holes. The estimated sanitary service for each phase of construction is as follows:

1. Campus Village Phase 2 = 6” service
2. Recreation and Aquatics Center = 6” service
3. Campus Village Phase 3 = 8”

**DOMESTIC WATER**
The campus domestic water system will provide 50 PSI service at the street. The campus is developing a separate capital improvement project that will upgrade the existing domestic water service to accommodate all future requirements. The estimated water service for each phase of construction is as follows:

1. Campus Village Phase 2: 4” domestic water service, (2) 8” fire water services
2. Recreation and Aquatics Center: 4” domestic water service, 6” fire water service
3. Campus Village Phase 3a: 5” domestic water service, (2) 8” fire water services
4. Campus Village Phase 3b: 4” domestic water service, (2) 8” fire water services
Introduction

RECLAIMED WATER
The existing campus reclaimed water system can only accommodate irrigation loads. The campus is developing a separate capital improvement project that will install a new reclaimed water distribution loop to accommodate service to all non-potable fixtures (such as water closets, trap primers, cooling tower make-up, etc.) in addition to the irrigation loads. However, fountains will still be provided with potable water. The campus reclaimed water system will provide 60 PSI service at the street. The estimated reclaimed water service for dual plumbed fixtures within the buildings for each phase of construction is as follows:

1. Campus Village Phase 2 = 2-1/2” service
2. Recreation and Aquatics Center = 3” service
3. Campus Village Phase 3a = 3” service
4. Campus Village Phase 3b = 2-1/2” service

GAS
There are currently multiple natural gas meters for the South East Quadrant of Campus. These will be consolidated to only one campus gas meter. A new gas distribution pipe will be tapped off of the existing gas upstream of the cogen meter and a new distribution gas meter will be installed at the Central Utility Plant to service the Southeast Quadrant. The estimated natural gas service for each phase of construction is as follows:

1. Campus Village Phase 2 = 9,600 MBH.
2. Recreation and Aquatics Center = No new gas service for this building. All hot water shall be provided by the existing steam system. Any new appliances (dryers, etc.) in the building will be electric.
3. Campus Village Phase 3 = 32,300 MBH.

STORM
Storm is in San Carlos running east to west and in Seventh Street running south to north. The new storm piping will connect to these existing mains. These projects fall under low impact design rules.

ELECTRICAL
Estimated Electrical service for each phase of construction as follows:

1. Campus Village Phase 2 and Recreation and Aquatics Center: Demolish the existing feeders from PG&E service feeding from Dining. Maintain service/meters feeding Dining and Joe West. Provide (2) new feeders from the existing electrical man hole (EMH-31) at the corner of San Carlos and Ninth Street and extend to a new 12kV sub-station with 3-way switch.
2. Campus Village Phase 3: Provide new feeder from the existing electrical man hole (EMH-18) on Seventh Street. Provide 12kV sub-station with 3-way switch. Each building will have a transformer and redundant feed. Maximum transformer size is 1,000 amps.

TELECOMMUNICATIONS
Estimated telecom service for each phase of construction as follows:

1. Campus Village Phase 2: Provide (4) new 4” conduits, connect to the existing vault in San Carlos.
2. Recreation and Aquatics Center: Demo existing telecom conduits going thru the site. Install (4) new 4” conduits, connect to the existing vault in San Carlos. Install new Telecom Vault to serve Washburn in Phase 2 to feed the future 3.
3. Campus Village Phase 3: Provide (4) new 4” conduits, connect to the new vault installed as part of the Recreation and Aquatics Center project.

RENEWABLE ENERGY
1. Installing PV would mean exporting the energy back to PG&E since much of the campus is powered through the cogeneration system. This is not ideal and should be avoided.
2. Since much of the load of the South Campus development is hot water intensive (pool heating, food service dish washing and domestic hot water, and housing domestic hot water needs) it is preferred to consider solar thermal as a renewable energy source, or fuel cell if financially viable. Note these would be connected behind the current PG&E interconnect.
3. The new pool could be utilized for renewable energy as a cooling source.
EXISTING SOUTHEAST QUADRANT

Sheet Notes
1. Existing Below Grade Service Tunnel
2. Existing Depressed Service Yard
The projects currently proposed for the Southeast Quadrant are divided into three primary phases as noted below.

- Campus Village Phase 2 (CV-2) - estimated completion July 2016
- Recreation and Aquatic Center (RAC) - estimated completion April 2018
- Campus Village Phase 3 (CV-3) is divided into two sub-phases, abbreviated as CV-3a and CV-3b respectively. CV-3 is a long term project and does not have a definitive project schedule, but is estimated at least fifteen years into the future.

Each phase is colored consistently throughout the Southeast Quadrant Phasing Study to provide enhanced legibility and graphic clarity. For interim conditions, refer to the Phasing Strategies.
### SJSU Southeast Quadrant Phasing Schedule

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### Milestones

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**Milestones:**
- RFQ Issued
- BOT / SD Approval
- Construction Agreement
- Contractor
- Foundation / Structural
- CD Phase
- Permitting & Approval

### Campus Village Phase 2

- RFQ Issued
- BOT / SD Approval
- Construction Agreement
- Contractor
- Foundation / Structural
- CD Phase
- Permitting & Approval

### Recreation Aquatic Center

- RFQ Issued
- BOT / SD Approval
- Construction Agreement
- Contractor
- Foundation / Structural
- CD Phase
- Permitting & Approval

### Campus Village Phase 3a & 3b

- RFQ Issued
- BOT / SD Approval
- Construction Agreement
- Contractor
- Foundation / Structural
- CD Phase
- Permitting & Approval
CV-3a
Design & Construction
- Selection
- Design
- Demolish Washburn Hall
- Construction Phase A

CV-3b
Construction
- Demolish Dining Commons & Joe West Hall
- Construction Phase B
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II. Phasing Strategies
As established in SJSU’s existing long-term Housing Plan, Campus Village Phase 2 (CV-2) project will provide replacement freshman student housing in the Southeast Quadrant of campus adjacent to existing residential, dining, and recreational facilities. The new CV-2 building will help define the quadrant as an intentionally vibrant campus life area; integrating the residential, recreational, and social spaces to meet student needs.

The desired capacity for the new CV-2 facility is 850 students and is intended primarily as replacement, plus some slight growth, for the three existing red brick residences.

It is the desire of SJSU to have the existing Aquatic Center immediately to the west of the CV-2 site to remain open and operational during the construction of CV-2.

**Campus Village Phase 2 Assumptions**

- **Beds:** 850 (90 beds per floor, including two RA’s)
- **Gross Square Feet:** ~220,000 at 260sf/bed
- **Floors:** 10
- **Floor to floor height:** 10’ typical and 15’ at grade
- **Building Footprint:** ~22,000 sf
The Phasing Study analyzed several on campus and off campus housing projects in an effort to help establish benchmarks and best practices. Based on the analysis, an assumption of 260 gross square feet per bed was assumed. Test fits on the proposed site boundary indicates 10 floors are required, with 90 beds per floor in compliance with the desired one Resident Assistant per 45 beds.

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<th>Scheme 1 High Rise</th>
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<td>-Mixed Occ Rooms -12 students per restroom - Half of 1st Floor is misc. program</td>
<td>-Mixed Occ Rooms -12 students per restroom - Half of 1st Floor is misc. program</td>
<td>-Mixture of 1, 2 &amp; 3 bed rooms - Entire 1st floor is misc program</td>
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<td>Scheme 3</td>
<td>Scheme 4</td>
<td>CSU Northridge</td>
<td>Mogavero Yield Analysis (UC Davis Tercero Model)</td>
<td>The Bricks</td>
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<td>-Dbl Occ Only</td>
<td>-4 students per restroom</td>
<td>-1 laundry per pd</td>
<td>-Dining Component of 50,000 included (2 add'l floors)</td>
<td>-The Bricks consist of 3 separate dorms. Numbers above are for a single dorm.</td>
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</table>
Demolition

The site currently has a functioning water well, steam vault and power vault. The water well is planned to be relocated or abandoned prior to commencement of construction for CV-2. The existing steam and power vaults are assumed to remain in place as part of the new CV-2 project.
The primary pedestrian entry to CV-2 is envisioned at the southeast corner of the project where it can have a direct link to the quad’s epicenter of activity and eventually adjacent to a new Paseo (Pedestrian Mall).
Fire Access to the Southeast Quadrant would remain the unchanged from existing conditions, utilizing the existing streets and Paseos for access.

There is an existing below service tunnel from Campus Village Phase 1 (CV-1) that crosses beneath Ninth Street, roughly at mid-block. The primary purpose of this tunnel is the transport of trash dumpsters from the basement of CV-1 to the existing service yard. CV-2 trash, maintenance, and laundry service would occur at basement level at the south edge of the building via a new service tunnel. The new service tunnel extends south to a slightly reconfigured Service Area. The existing service tunnel from CV-1 would be extended east to create a connection between the two tunnels.
Existing grades of the CV-1 tunnel and sunken service yard, along with required vertical clearances for trash collection make a below grade approach for service access prohibitively expensive for the CV-2 and RAC projects. Further, SJSU desires the new Paseo (pedestrian mall) be completed as part of the CV-2 and RAC projects.

Therefore, CV-2 will slightly reconfigure the existing service yard as part of its base scope for the purpose of implementing the beginning stages of the new Paseo, while also maintaining truck access to the service tunnels. A new retaining wall will be designed to visually and physically separate the new Paseo from the sunken service yard. The RAC project will expand on this approach in the future to complete the new Paseo.

Finish grades of the new Paseo will be slightly elevated in order to accommodate the below grade service tunnels. The finish floor elevation for CV-2 will need further study during the design phases, since existing grades are sloping gently down towards Paseo de San Carlos to the north.

Sheet Notes

+85’ Number Indicates Approximate Finish Grade Elevation

1. Existing Below Grade Service Tunnel
2. New Below Grade Service Tunnel
3. New Exterior Trash Dumpster Staging Area
4. New Retaining Wall
5. Existing Service Yard To Remain
6. Existing Ramp Down To Remain
7. Finish Floor Elevation To Be Determined
The proposed setbacks for CV-2 along the north and east boundaries seek to maintain the openness and character of the existing "Paseos" or pedestrian malls. The western setback of CV-2 is defined by the existing Aquatic Center pool deck. While somewhat flexible, the southern setback is defined by the existing retaining wall of the CV-1 service tunnel. However, the Phasing Study is proposing a southern edge that roughly aligns with CV-1 building A. This alignment sets up the future development of the new mid block Paseo.

**Legend**
- **Limit of Work** - approximate
- **Setback** - proposed
- **Assumed Property Line**

**Phasing Key**
- **Campus Village Phase 2**
SJSU has determined it is necessary to provide additional and higher quality activity space on campus in order to nurture and strengthen the mind, body and spirit of its student body. The new Recreation and Aquatic Center (RAC) will consist of roughly 94,000 gross square feet of building space, a 50 meter outdoor competition pool, a 3,400 square foot recreation pool and outdoor pool support spaces. A test fit of the program on the proposed site boundary indicates two floors will be sufficient.

A detailed programming report was provided by SJSU for this study title: San Jose State University Sport Club - Event Center Expansion and Renovation Detailed Project Program (January 2008). A programming verification exercise is anticipated at the commencement of this phase of work.

Recreation and Aquatic Center Assumptions
Gross Square Feet: ~94,000
Floors: 2
Floor to floor height: 18'
Building Footprint: ~68,000 sf
Demolition

The existing Aquatic Center, Hoover Hall housing, Royce Hall housing and modular buildings will need to be demolished prior to commencement of construction for the new RAC. Further, existing utility easements in 8th Street will need to be legally abandoned and any existing piping removed prior to construction.

Legend

- Existing Public Utility Easement
- Building Demolition
- Utility Easement Abandoned
The RAC will have one public pedestrian entrance to better serve operational and security needs. This entrance will be located at the northwest corner of the project where it will be adjacent to the intersection of Paseo de San Carlos and 7th Street, the heart of the campus.

A new "Paseo" or pedestrian mall will be constructed along the southern edge of the RAC, spanning from 7th Street to 9th Street. The Paseo will have a mixture of hardscape and landscaping features appropriate for its overall character. A second pedestrian entry at the pools for special events, such as swimming competitions, merits further consideration.

A new informal court will be created between the existing CV-2 and the new RAC. This space could also be utilized by the RAC for barbecue functions.
The new Paseo will also serve as a new Fire Access connection between 7th Street and 9th Street.

Trash and laundry service for the RAC is envisioned occurring from 7th Street, while service for the pool equipment will occur via a path on the new Paseo.
The RAC project will complete the new Paseo by further reconfiguring the existing service yard. The retaining wall separating the Paseo and sunken service yard will be extended west to Eighth Street. New landscaping on the north side of the retaining wall will complete the new Paseo. The existing service yard ramp from Eighth Street will be replaced with a new ramp.

The elevated finish grades of the Paseo, due to the tunnels below, will transition gently down to the existing grades at Eighth Street without requiring accessible ramps or steps.

Sheet Notes

+85' Number Indicates Approximate Finish Grade Elevation
1 Existing Below Grade Service Tunnels
2 New Retaining Wall
3 Existing Exterior Trash Dumpster Staging Area
4 Existing Retaining Wall
5 Existing Service Yard To Remain
6 New Ramp Down
7 New Finish Grade To Slope As Required
Project Boundaries

Similar to the setbacks for CV-2, the new RAC should respect the precedents set by the Paseos. The western and northern setbacks will therefore align with neighboring buildings. The eastern setback will be 60 feet from the face of CV-2. The southern setback shall approximately align with the southern edge of CV-2, which will help define the northern side of the new Paseo.

The eastern and southern setbacks can be reduced with the understanding that fire protected openings and fire resistive wall construction may be required as a result.

The L.O.W. indicated encompasses the demolition of the existing residential halls and will require new landscaping.
Model Images

Southeast corner of quadrant

North side of quadrant

Northwest corner of RAC

Phasing Strategies
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In 15 to 20 years, the Campus Village Phase 3 (CV-3) will be the completion of the University’s long-term Housing Plan to accommodate growth in the student housing population and replace existing aging buildings. Since a detailed program for this phase has not been established, the assumptions listed below were made for the purpose of this study. The planning components of CV-3 permit great flexibility to adapt in the future when the project’s goals are more established.

A new dining facility will likely need to be constructed to replace the aging Dining Commons. Therefore, the new facility will need to be operational prior to demolition of the existing Dining Commons. As a result, CV-3 will need to be divided into two sub-phases (CV-3a and CV-3b).

The arrangement of the building massing for CV-3 will be primarily along the southern edge of the site boundary providing a University presence at the edge of campus, generous landscaped space towards the inner campus and minimizing shadow impact on the existing RAC swimming pools to the north. Preferably, when CV-3 is fully completed, all service access will come from San Salvador Street to minimize the need for vehicular traffic onto campus.

Campus Village Phase 3a Assumptions

- Beds: ~1,150 (half of 2,300)
- Gross Square Feet: ~300,000 at 260sf/bed
- Floors: 10
- Floor to floor height: 10’ typical and 15’ at grade and Dining
- Dining: 50,000 sf over 2 floors
- Building Footprint: ~55,000 sf
Existing Washburn Hall and campus gateway monuments will be demolished prior to this phase.

Legend
- Existing Public Utility Easement
- Building Demolition
- Utility Easement Abandoned
Multiple primary pedestrian entries for the housing component of CV-3a are anticipated. The first entry is likely to be located at the corner of Seventh Street and San Salvador Street as part of the campus “gateway”. A second primary entry could occur at the Paseo (pedestrian mall), helping to activate and engage the important outdoor space. Similarly, the new Dining Commons would have its primary entry off the Paseo. Outdoor seating arranged around the entry will vitalize the Paseo.

Secondary pedestrian entries would be located as necessary, taking advantage of new plazas, street and Paseo frontages.
Service access to the existing Southeast Quadrant buildings will continue to utilize Eighth Street and the existing service yard on the north side of the Dining Commons during this period. Service to CV-3a will temporarily come off of Eighth Street, until CV-3b is completed.

Fire Access remains the same from the previous RAC phase.
No modifications to the sunken service yard are required as part of the CV-3a scope of work.

Sheet Notes

+85’ Number Indicates Approximate Finish Grade Elevation

1 Existing Below Grade Service Tunnels
2 Existing Retaining Wall
3 Existing Exterior Trash Dumpster Staging Area
4 Existing Sloped Finish Grade
5 Existing Service Yard To Remain
6 Existing Ramp Down
Setbacks for CV-3a along the southern and eastern edges of the project are defined by the existing adjacent buildings. The western edge is temporarily defined by 8th street until phase CV-3b is completed. The setback for the northern edge is flexible, to encourage a modulated edge between the existing Paseo (Mall) and the new CV-3a project.
Model Images

Southeast corner of quadrant

Northeast corner of quadrant

Southwest corner of CV-3a

Phasing Strategies
The flexibility of the CV-3a phase mentioned previously is apparent in this sub-phase of work as well. Depending on the dynamic needs of the campus and the ability of the existing Joe West Hall and Dining Commons to meet those needs, SJSU could choose to alter this phase, by keeping one or both of these buildings in service.

However, it is more likely these buildings will need replacing in 15 - 20 years time. For the purpose of this study, it has been assumed these buildings will be replaced.

CV-3b will provide additional housing to complete the 2,300 beds started in the CV-3a phase. A portion or wing of the new building will connect directly to the existing CV-3a building, thus creating a single building and maintaining the campus edge along San Salvador Street. A second building will rise roughly where the Joe West Hall footprint once occupied. The space between the two new buildings will provide ramped access to a new sunken service loading dock.

**Campus Village Phase 3b Assumptions**
- Beds: ~1,150 (half of 2,300)
- Gross Square Feet: ~300,000 at 260sf/bed
- Floors: 10
- Floor to floor height: 10’ typical and 15’ at grade
- Building Footprint: ~40,000 sf
Demolition

Any remaining utility easements in 8th Street will need to be legally abandoned and all pipes removed prior to commencement of construction. The existing Dining Commons and Joe West Hall will be demolished as part of the scope of work for this phase, including the existing service yard.

Legend

- Existing Public Utility Easement
- Building Demolition
- Utility Easement Abandoned
CV-3b primary pedestrian entries will be located along the northern edge off of the Paseo (pedestrian mall) further strengthening this important campus link. Eighth Street will be officially closed off to make way for the new buildings and provide additional outdoor space off of the Paseo.
An internal loading dock adjacent to the new Dining Commons will be constructed in CV-3b, with service access coming off of San Salvador Street.

A new curb cut off San Salvador Street with a ramp down to a sunken loading area will be added between the new buildings.

The Paseo (pedestrian mall) will serve as a fire access lane between Seventh Street and Ninth Street.
Eighth Street will be abandoned in CV-3b in favor of increased open directly linked to the Paseo space within the housing project. A new, more direct service access ramp will come directly off San Salvador Street to a reconfigured sunken service yard. Since the Dining Commons will be relocated as part of the CV-3a project, the service yard can be reduced greatly with it's primary focus being trash collection.

Access to grade at the Paseo from CV-3b will need to be studied during design to ensure smooth transition.

**Sheet Notes**

- +85' Number Indicates Approximate Finish Grade Elevation
- 1 Existing Below Grade Service Tunnels
- 2 Existing Retaining Wall
- 3 Existing Exterior Trash Dumpster Staging Area
- 4 New 3 Point Turn Around
- 5 New Retaining Walls
- 6 New Ramp Down
- 7 Existing Sloped Finish Grade
- 8 Finish Floor Elevation To Be Determined
Project Boundaries

Setbacks in the CV-3b phase will continue to align with adjacent buildings further defining the Paseos and San Salvador Street.

Legend
- Limit of Work - approximate
- Setback - proposed
- Assumed Property Line

Phasing Key
- Campus Village Phase 2
- Recreation and Aquatic Center
- Campus Village Phase 3a
- Campus Village Phase 3b
Phasing Strategies

CAMPUS VILLAGE PHASE 3b

Model Images

Southeast corner of quadrant

Northeast corner of quadrant

Southwest corner of quadrant
Shadow Analysis

March 21, 9:00 am PDT
March 21, 12:00 pm PDT
March 21, 3:00 pm PDT

June 21, 9:00 am PDT
June 21, 12:00 pm PDT
June 21, 3:00 pm PDT

A | PAVING & WALKWAYS

Utility Phasing Strategies
SJSS SOUTHEAST QUADRANT PHASING STUDY

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III. Supporting Documents
1. San Jose State University Sport Club - Event Center Expansion and Renovation Detailed Project Program, January 2008, Brailsford & Dunlavey
2. San Jose State University Student Life Facilities Feasibility Study, March 2007, Brailsford & Dunlavey
3. Building Assessment Study for the Event & Recreation Center and Aquatics Center, February 2005, Salas O’Brien
4. SJSU Master Plan Workshop Student Health Center Event Center - Sports Club Aquatic Center, March 2009, Rossetti
5. Needs Assessment Study: San Jose State University Aquatic Center, September, 2011, Aquatic Design
7. SJSU Housing / Dining Study Project Notes No. 1, March 21, 2012, Daniel No - SJSU
8. Evaluation Report Master Plan of Quadrant D with Dining Commons Expansion Project, May 2013, Habitec
9. Utility Master Plan, August 2013, Salas O’Brien
10. Replacement Housing Programmatic Features, July 2013, SJSU
11. SJSU Recreation and Aquatic Center Presentation Package, September 2008, HOK Architects
12. San Jose State University Landscape Master Plan, June 2013, WRT